Review of Environment and Earth Sciences
2014 Vol.1, No.1, pp. 11-14
ISSN(e): 2313-8440
ISSN(p): 2409-2150
DOI: 10.18488/journal.80/2014.1.1/80.1.11.14

PROFESSOR: THE ANIMAL PLANET OPTIMIZATION

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ABSTRACT

This paper is dedicated to everyone who is interested in making this planet a better place to live. In the past, researchers have explored behavior of several animals separately. But there is scope to explore in the direction where various artificial animals together solve the optimization problem. In this paper, Satish Gajawada proposed The AnimalPlanet Optimization. The concept of this paper is to imitate all the animals on this planet. The idea is to solve the optimization problem where all the artificial animals together solve the problem.

Keywords: Optimization methods, Animals, Genetic algorithm, Particle swarm optimization, Differential evolution, The human optimization, The animal planet optimization.

Contribution/ Originality

In this paper an attempt has been made to design an optimization algorithm based on several animals. Although in literature, animals are imitated separately to create optimization algorithms but there is lot of scope to explore in direction where several animals are imitated together in single optimization algorithm. One such algorithm has been designed in this paper.

1. INTRODUCTION

Artificial Ants, Fishes, Bees and so on were used in the past for solving optimization problems. Recently, in Satish [1] Artificial Humans have been used for developing an optimization method known as POSTDOC. Clustering problem was solved by using optimization methods in [2-5]. A single corresponding author proposed these new methods. The same author proposed "Smile Theory of Everything" in Satish [6]. These new methods show the kindness and intelligence of single author. One can observe excellence (intelligence, kindness etc) of several animals all across the globe. Hence in this paper The Animal PlanetOptimization is proposed which is based on all Animals.

2. MATERIALS AND METHODS

A clustering method was proposed in Satish and Durga [7] which comes under the category of semi-supervised clustering method. In Satish and Durga [8], an optimization method has been used in the pre-processing stage. Although optimization methods were proposed based on several animals but there is scope to explore in direction where several artificial animals together solve the problem in single optimization method. This paper is an attempt in this direction. In this paper all artificial animals including Humans are imitated to solve the problem.Figure 1 shows the pseudo code of "The Human Optimization" method. The nick nameof this algorithm is "Post

Doc". The terminology used in the proposed Professor method is explained afterthe Figure. 1.

Figure-1. The Human Optimization Method (Post Doc)

```
main (){
 Initialize Locations of Humans;
 Initialize Guidance Locations of Humans;
 Initialize Love array;
 Initialize step;

while(Termination_Condition_Reached not equal to true){
   Update Locations of Humans();
   Update Guidance Locations of Humans();
   Update Love array();
   Update Step();
 }
}
```

For the sake of simplicity the behavior of all the animals is assumed to be same. Hence The Animal Planet Optimization method can be obtained by replacing Humans with Animals in Figure 1.

2.1. Terminology

The Terminology used in the proposed Professor method can be obtained by replacing "Human" with "animal" in Terminology section in Satish [1].

3. RESULTS AND DISCUSSION

Professor method is composed of initialization part followed by iteration part. The initialization part is shown below:

Initialize Locations of Animals;
Initialize Guidance Locations of Animals;
Initialize Love array;
Initialize step;
The iteration part is shown below:
while(Termination_Condition_Reached not equal to true){
    Update Locations of Animals ();
    Update Guidance Locations of Animals ();

Update Love array();
Update Step();}

The function Update Locations of Animals can be implemented in a similar way as function Update Locations of Humans in Satish [1].

Consider each guidance location of animal as particles and update them using Particle Swarm Optimization (PSO). Love array can be updated by selecting some values randomly and modifying them. Update step function is used to modify the step value.

The difference between POSTDOC method proposed in Satish [1] and Professor method proposed in this paper is that POSTDOC method is based only on Humans whereas Professor method is based on all Animals. Imitating all animals together is very complex but as a starting point an assumption has been made in this paper. As a result of this assumption the Professor method can be obtained by replacing "Human" with "Animal" in POSTDOC method proposed in Satish [1].

4. CONCLUSIONS

In this paper, The Animal Planet Optimization method (also known as Professor method) has been proposed. Optimization algorithms based on animals (where each animal is imitated separately) proved their strength. Hence optimization methods based on several animals together are expected to prove their strength like other optimization methods in literature.

5. ACKNOWLEDGEMENTS

Thanks to my FAMILY.

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